

SECURE E- MEDICAL RECORD SYSTEM

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This project is submitted in partial fulfillment of
the requirements for the degree of Bachelor of Computer Science with Honours

Faculty of Computer Science and Information Technology
UNIVERSITI MALAYSIA SARAWAK
2005

ACKNOWLEDGEMENT

This final year project is an individual project as a requirement to fulfill the degree programme. This project took three months to complete and I would hereby take the opportunity to state my gratitude to a few people who are involved directly and indirectly in successfully completing this project. Firstly, my greatest appreciation goes to my supervisor En. Johari Abdullah, who has been supervising, assessing and guiding me through the entire completion of this project. En. Johari has guided me a lot in the areas where I still lack the knowledge and his guidance has made me improve a lot during the development of this system. Secondly, I would like to thank the lecturers and staffs of the Faculty of Computer Science and Information Technology who has been supporting me and providing the facilities which are needed in developing the system. A gratitude to Pn. Norliza Ibrahim; the clinic OMPD whom had helped me in my research and information gathering. Last but not least, appreciation is also shown for my course mates who have been a great help when in times of difficulties being faced through this project.

ABSTRACT

This project is developed mainly as a requirement of the degree. This project is under the supervision of En. Johari Abdullah and is being examined Pn. Kartinah Zen. Secure e-Medical Record System, serving the purpose to enhance the medical record management by authorized administrator. This administrator is an authorized UNIMAS staff. The existing medical records management is done manually. Secure e- Medical Record System defines different access level to the records. Basically, this system able the entire patient's profiles and medical records to be viewed on- line by authorized doctor once the doctor logs in to the system. This eases the references during the patient's treatment. At the same time, the record is automatically up- dated as the responsible doctor key- in the latest medical information about the patient. The record contains the patient's profile; previous treatment received and drug prescriptions.

Authorized doctors have access to the patients' profiles, update the drugs prescriptions and change their own password according to their preferences. Authorized assistants/ front desks have access to register the patients and update the bill.

Administrator has the access to the clinics' staff registrations, clinics' staff profiles, patients' profiles, and bill summary as well as consultation history.

ABSTRAK

Projek ini merupakan salah satu kursus dalam pengajian ijazah sarjana muda di UNIMAS. Penyelia projek ini adalah Encik Johari Abdullah dan dinilai oleh Pn. Kartinah Zen.

Secure e- Medical Record System merupakan sebuah sistem yang dibangunkan untuk memperbaiki pengurusan rekod – rekod perubatan yang mana diawasi oleh pentadbir/ pengurus yang diberi kelulusan. Rekod- rekod perubatan ini kini diuruskan secara manual. Dalam Secure e- Medical Record System, pengurusan rekod- rekod adalah berdasarkan tahap kebenaran untuk memasuki sistem. Sistem ini membolehkan semua rekod dan biodata pesakit dimasuki apabila doktor yang diberi kebenaran memasuki sistem ini. Ini memudahkan rujukan dan kemaskini rekod- rekod pesakit. Rekod pesakit mengadungi biodata pesakit, sejarah perubatan dan senarai ubat- ubatan pesakit. Doktor mempunyai kebenaran untuk memasuki biodata pesakit dan megemaskini rekod perubatan pesakit.

Pembantu kesihatan pula, diberi kebenaran untuk mendaftar pesakit dan mengemaskini bil perubatan.

Pentadbir/ Pengurus pula dibenarkan mendaftarkan doctor dan pembantu kesihatan, melihat biodata- biodata pesakit, doktor dan pembantu kesihatan, rumusan bil serta sejarah perundingan pesakit.

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Demo (Visit <http://www.pdfsplitmerger.com>)

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CHAPTER 1.0 INTRODUCTION

1.1 INTRODUCTION

This project is a prototype design of a Secure e-medical record system for UNIMAS staffs, students and panel clinics. The existing medical records management is done manually. This system is believed to enhance the medical record management by authorized administrator; which is a UNIMAS staff. This is made possible with different access level to the records. Basically, this system able the entire patient's profiles and medical records to be viewed on- line by authorized doctor once the doctor logs in to the system. This eases the references during the patient's treatment. At the same time, the record is automatically up- dated as the responsible doctor key- in the latest medical information about the patient. The record contains the patient's profile; previous treatment received and drug prescriptions.

1.1.1 EVOLUTION

During 80's, computer was introduced as an office tools, in which user used only word processing and spreadsheet. Then, user was able to store files on computer and retrieved the file for references. After the breakthrough, many software has been developed to ease records management and ensure its efficiency.

The main criterion of this system is to ease the medical record management and transaction. Currently, the medical records are not stored in proper manner and it is a paper- based system which is done manually. Besides, it is possible to develop a system which allows remote access to the records since UNIMAS do collaborate or cooperate

with other clinics; known as panel clinics. However, as this research is carried out, the complementary attributes of this system has been extended to design a prototype which keep or store the medical records safely as the records can only be accessed authorized user; the physician and administrator. Besides, this prototype is also designed to enhance the security level on the medical records access as it involves other panel clinic.

1.1.2 PROJECT BACKGROUND

This project background consists of different module:-

- a) Administration Module
- b) Doctor Module
- c) Front desk/ assistant Module

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1.1.2.1 OVERVIEW ON SECURE E- MEDICAL RECORD SYSTEM

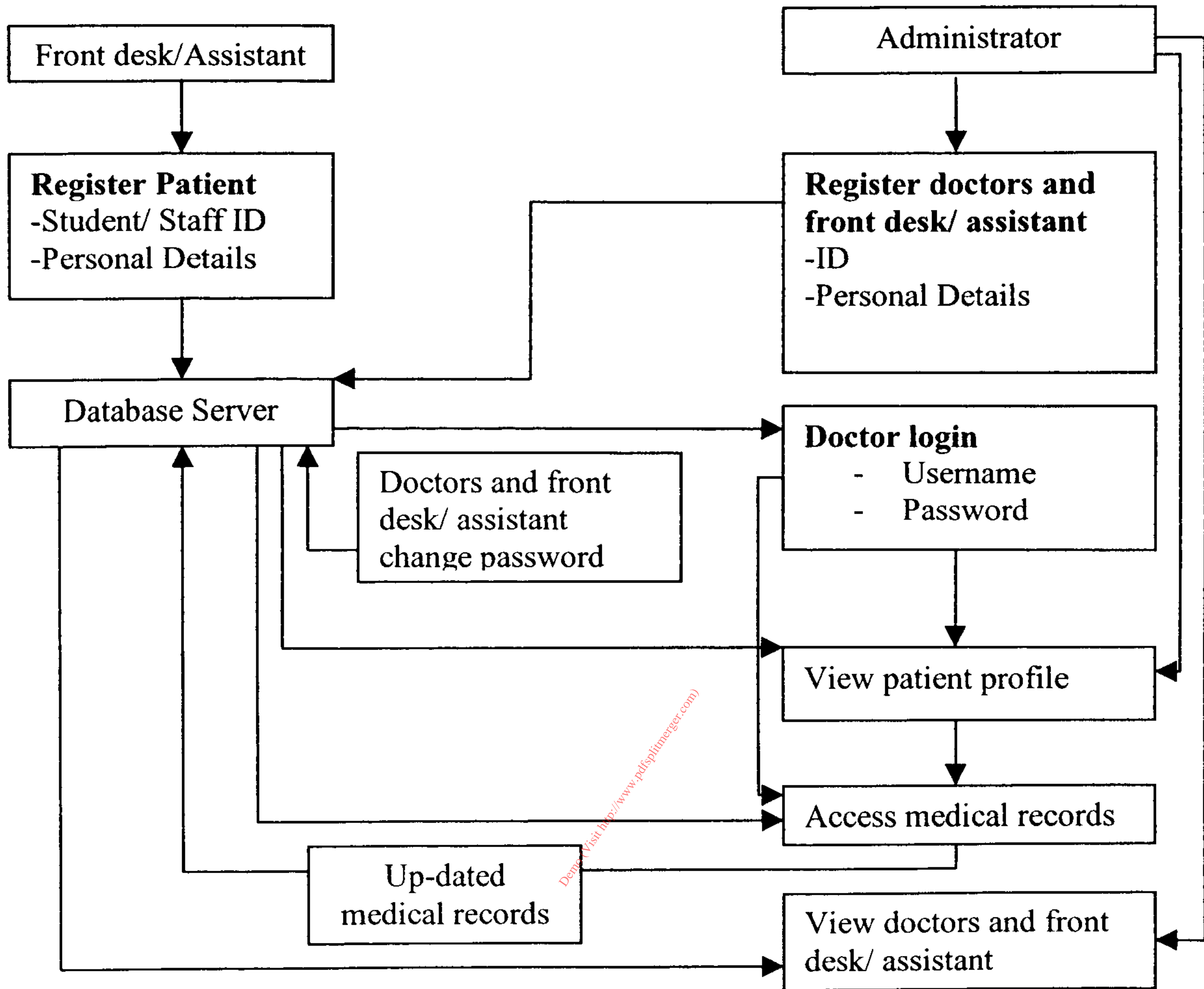


Figure 1.1 Overview on Secure e- Medical Record System

DESCRIPTIONS

This diagram shows the method on accessing the medical records. The patient record is automatically kept as he/she registers or attends to UNIMAS main campus clinic or its panel clinics. It includes his/her personal details. The profile is stored in database. If the administrator, doctor or front desk/ assistant wants to access to the record, he/she needs to log in to the system with the valid username and password as the verifications. Then he/she has the access and able to verify the patient’s record based on patient ID; which is

referred to Student ID or staff ID. However, their access is limited based on their level of permission.

The administrator has the access to register and view doctor or frontdesks' profiles. however, not allowed to update patients' profiles or drugs records.

Based on this record, the doctor is acknowledged about the patient's record; consisting the history medical report, j patients and view drugs prescribed.

As the patient receives the treatment, his/ her medical record is automatically up- dated as the doctor key- in new particulars and information. This up- dated record is then saved and stored in the database.

1.1.3 WHY THE PROJECT WORTH DOING?

This project is worth doing because it benefits UNIMAS campus clinic and its panels in medical record management and transaction. The clinic currently using paper- based system which is done manually. Therefore, a new computerized system is meant to ease the management and transaction. Furthermore, if this system successfully developed, it benefits UNIMAS clinic and its panel. Besides, it also eliminates records redundancy. At the same a lot of experiences and skills could be gained.

1.2 PROBLEM STATEMENT

UNIMAS clinic has several problems; mainly involve the medical records management and transactions since it involve panel clinics. The current system does not allow the medical record to be transferred or shared among authorized doctors. These causing problems when a patient attends to different panel clinic whereby, this patient will have a

new medical record in that clinic. It causes redundancy and no immediate reference on that patient medical history.

The clinic uses three different medical files; red, yellow and blue. Blue is the student's medical file. Meanwhile, red file is the staff's medical file and yellow refers to staff's family member (spouses and children)'s medical file. Besides, these files can be accessed by all the clinic staffs regardless of their positions. This is a security issue.

Another problem is patient registration and drugs prescription is done manually. Currently, patient names, gender, matrix ID and times attended are stored using Microsoft Access which could not support large amount of data.

Therefore main goals of this system are to develop a system that allows remote access to the records, automatically update the drugs prescription and ease patients' registrations.

Besides, this project is meant to fulfill Final Year Project II requirements.

1.3 PURPOSE OF STUDY

The purpose is to develop a new computerized system for UNIMAS clinics and its panels. The main challenges are to create proper computerized system for three different level of access; namely Administration, Physician and Clinic Assistant.

a) Administration Module

- Registration of Doctor and Front desk/ Assistant
- View Doctor and Front desk/ Assistant Personal Details
- View Patient Records
- View Bill Summary
- View Consultations History

- Reset Bill
- Logout

b) Doctor Module

- Search Patient
- View Patients Records
- Update Drugs Prescriptions
- Logout

c) Front desk/ Assistant Module

- Search Patient
- Registration of Patient
- View Drugs Prescription List
- Update Bill Amount
- Logout

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This system should keep the medical records for future references. Besides, it is aimed to produce a user- friendly system that can reduce time and gives better solution to the current manual system inefficiency.

1.4 PROJECT OBJECTIVES

Objectives of this system development are to produce a system; UNIMAS Medical Record System which has the following features:-

- a) Paper- based system will be placed with computerized system
- b) Ensure the data can be retrieved for future use
- c) Ensure the data can be accessed at any time by authorized user
- d) Provide security with only allow authorized access

1.5 OVERALL SCOPE OF PROJECT

- a) The records and database can be accessed remotely by authorized users.
- b) Registrations are made easier and more manageable.
- c) Medicine prescriptions registrations are made easier and stored in database instead of in paper- based files
- d) Users can change their password according to their preference.

1.5.1 SCOPE OF ADMINISTRATION MODULE

- a) Registration of Doctor and Front desk/ Assistant

This allows administrator to register new patient and store the details in database. These details can only be viewed by the administrator. Submit button is to save the information in the database, meanwhile clear is to clear all the keyed information.

- b) View Doctor and Front desk/Assistant Profiles

This allows administrator to review the physicians and clinic assistants' details.

c) **View Patients Profiles**

This allows administrator to review the patients' details.

d) **View Bill Summary**

View the outstanding bill for each UNIMAS staffs and family members.

e) **View Consultation History**

View UNIMAS staffs and family members' consultation dates and bill for the particular consultation

f) **Reset Bill**

Reset the outstanding bill amount to zero.

g) **Logout**

Allow administrator to end the session in the system

1.5.2 SCOPE OF DOCTOR MODULE

a) **View Patients Profiles**

This allows administrator to review the patients' details.

b) **Update Drugs Prescriptions**

This allows the physician to have access to the patient's medical record. Patient's medical history also can be viewed as well as updated.

c) Search Patient

Search Patient allows the physician to allocate and access patient record based on patient ID rather than search the record sequentially. Eliminate time consuming.

d) Logout

Allow administrator to end the session in the system

1.5.3 SCOPE OF FRONT DESK/ ASSISTANT MODULE

a) Search Patient

Search Patient allows the clinic assistant to allocate and check whether patient record based exist on the system. If patient record does exist, then the patient just needs to wait for consultation. If patient record does not exist, then patient needs to be registered.

b) Registration of Patient

This allows clinic assistant to register new patient and store the details in database. These details can only be viewed by the physician and administrator. Submit button is to save the information in the database, meanwhile clear is to clear all the keyed information.

c) **Drugs Delivery**

Deliver drugs to patients based on the patient ID and drugs prescribe for the particular day.

d) **Update Bill Amount**

Insert bill amount for each prescriptions. This is only for UNIMAS staffs and family members.

1.6 RESEARCH SIGNIFICANCE

This project is developed for UNIMAS clinic and its panel clinics. This system will improve the quality of service; in terms of records management and transaction, registration and record updating. The benefits are listed as tangible and intangible:-

a) **Tangible benefits**

Computerized system allows better records management and transaction, registration and record updating. This is more time saving and improves the performance.

b) **Intangible benefits**

The physician can view patients' medical records and drugs prescriptions. These records are accessible remotely reducing redundancy.

The physician can view all the patient profiles for future use.

The administration can view physicians, clinic assistants and patients profiles.